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Please amend claims 1, 18, 22, 24, 34, 35, 36, 40, 41, and 42 as

follows:

1. (Twice Amended) A system comprising:

a transceiver constructed to transmit an interrogating beam;

a communications station capable of receiving said interrogating beam;

B1  
and

said communications station having a plurality of broad area intra-cavity phase conjugators arranged in an array.

18. (Twice Amended) A system comprising:

a transceiver constructed to transmit an interrogating beam;

a communication station capable of receiving said interrogating beam;

B2  
and

said communication station having a broad area, intra-cavity phase conjugator with a top electrode, wherein an electrode is located in said top electrode.

22. (Twice Amended) A system comprising:

a transceiver constructed to transmit an interrogating beam;

a communication station capable of receiving said interrogating beam;

B3  
and

said communication station having a broad area intra-cavity phase conjugator which is a VCSEL structure.

24. (Twice Amended) An optical interconnection system comprising:

a fiber optic device constructed to transmit an interrogating beam; and

B4

a micro-mirror adapted to receive said interrogating beam and transmit the beam to a predetermined broad area intra-cavity phase conjugator.

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34. (Twice Amended) A system comprising:

a means for transmitting and receiving an interrogating beam; and

a communication station operatively coupled to said transmitting and receiving means, wherein the station includes a broad area intracavity phase conjugator for returning a phase conjugate beam to said transmitting and receiving means.

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35. (Amended) A method comprising:

transmitting an interrogating beam from a transceiver;

receiving said interrogating beam at a communication station;

producing a phase conjugate beam of said interrogating beam by a broad area intracavity phase conjugator;

encoding data onto said phase conjugate beam and pumping an encoded phase conjugate reflectivity by nondegenerate four wave mixing; and

transmitting said encoded phase conjugate beam back to the receiver.

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36. (Amended) A method comprising:

transmitting an interrogating beam from a transceiver;

receiving said interrogating beam at an array of phase conjugators;

producing a phase conjugate beam of said interrogating beam, wherein each of said phase conjugators arranged in said array comprise a broad area intracavity micro phase conjugator;

modulating data onto said phase conjugate beam; and  
transmitting the phase conjugate beam back to said transceiver.

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40. (Twice Amended) A method comprising:

transmitting an interrogating beam from a transceiver;

receiving said interrogating beam at an array of broad area, intra-cavity  
phase conjugators through apertures located in the top electrodes of the phase  
conjugators;

modulating data onto a phase conjugate beam; and

transmitting the phase conjugate beam to said transceiver.

41. (Twice Amended) A method comprising:

transmitting an interrogating beam from a transceiver;

receiving said interrogating beam at an array of broad area, intra-cavity  
phase conjugators and resolving a substantial portion of the spatial components of  
the input wavefront of the interrogating beam;

modulating data onto a phase conjugate beam; and

transmitting the phase conjugate beam to said transceiver.

42. (Twice Amended) A method of providing an optical interconnect  
comprising:

transmitting an interrogating beam from a fiber optic device;

receiving said interrogating beam at a micro-mirror across free space;

transmitting a second beam from said micro-mirror; and